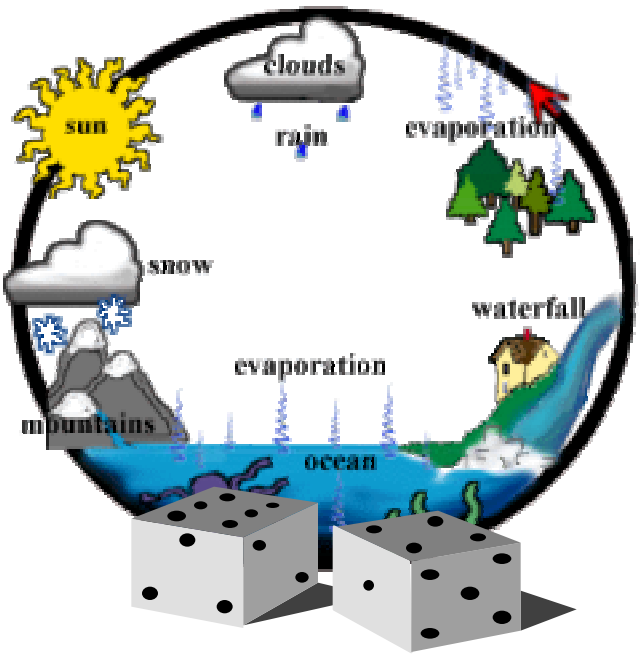
WATER CYCLE GAME



Objectives:

Using this Project WET activity, students will:

- describe the movement of water within the water cycle.
- identify several different states of water as it moves through the water cycle.

Materials:

- 1 set of water cycle dice
- Laminated labels for each of the 10 stations
- Copies of the water cycle table
- Bell, whistle, buzzer, or other sound maker
- Journal or paper and pencil

Procedure:

1. Ask the students to identify the different places water can go as it moves through and around the earth. Write their responses on the board.
2. Tell the students that they are going to become water molecules moving through the water cycle. Compare their list with the 10 stations that are part of this activity. Were there any differences?
3. Place the laminated station labels and dice around the room or yard to mark the 10 stations: clouds, plants, animals, river, ocean, lake, caves, groundwater, soil, and glacier. Divide students evenly between the stations. (The cloud station can have an extra student if necessary).
4. Have each group identify the different places that water can move from their station. Discuss the conditions that cause the water to move from one location in the water cycle to another. Explain that water movement depends on energy from the sun (electromagnetic energy) and gravity. Sometimes water will not go anywhere. Have each group share their list. The water cycle table provides an explanation of water movements from each station.
5. Discuss the form in which water will move from one station to another. Most movement will take place when water is in the form of water vapor, with molecules moving rapidly and apart from each other.
6. Have students line up at their stations. Explain the rules of play, and tell them that the game will begin and end with the sound of a bell. After the bell, the first student in each line rolls the die and goes to the station indicated. If they move as liquid, they will move in pairs (with the person behind them in line); if they move as vapor, they move alone. The pairs represent many water molecules clinging together in a drop. In water vapor, the molecules move individually. If the student rolls a "stay," they go to the back of the line, staying at that location. The next student in each line then rolls the die. End with the bell.

7. Students should keep track of their movements. This can be done by having them keep a journal or notepad to record each move they make, including "stays." Most students will end up in the ocean.
8. Use the music Water Cycle Boogie while doing this activity. If you would like more information about the Banana Slug String Band, visit their web site: www.bananaslugstringband.com for a wealth of great entertainment and useful information and an opportunity to get the Banana Slug String Band to play at your school!

Wrap Up:

Have students use their travel records to discuss the places the water has been.
Discuss cycling that took place (that is, if the student returned to the same station). Provide students with a location and have them identify ways water can move to and from the site. Where did most students have to "stay"? Where in the real world does most of the water stay?

Cut the template out and trace it onto a piece of light-weight cardboard. Cut the cardboard and fold at the lines to create a box or die and tape the scenarios onto the sides of the die. The example shown is the lake station.

Water is pulled by gravity; it filters into *groundwater*

An *animal* drinks the water

Water *remains* within the lake

The water flows into a *river*

Heat energy is added to the water, so the water evaporates and goes into the *clouds*

Water *remains* within the lake

Use the template from the previous page to make a set of water cycle dice. There will be a total of 10 dice in the set.

The template shows how a "Lake Station" die will look.

Following the dice section are station labels.

Lake Station

1. Water is pulled by gravity; it filters into *groundwater*
2. An *animal* drinks the water
3. Water flows into a *river*
4. Heat energy is added to the water, so the water evaporates and goes into the *clouds*
5. Water *stays* within the lake
6. Water *stays* within the lake

Animal Station

1. Water is excreted onto the *soil* through feces and urine
2. Water is excreted onto the *soil* through feces and urine
3. Water is respired or evaporated from the body and goes into the *clouds*
4. Water is respired or evaporated from the body and goes into the *clouds*
5. Water is respired or evaporated from the body and goes into the *clouds*
6. Water is incorporated into and *stays* in the body

Groundwater Station

1. Water filters into a *river*
2. Water filters into a *lake*
3. Water filters into a *lake*
4. Water filters into a *cave*
5. Water *stays* underground
6. Water *stays* underground

Cave Station

1. Water filters through the cave to *groundwater*
2. Water filters through the cave to *groundwater*
3. Water *stays* hanging on stalactites
4. Water *stays* hanging on stalactites
5. Water *stays* contained in pockets in the cave
6. A cave-adapted *animal* drinks the water

Soil Station

1. Water is absorbed by *plant* roots
2. The soil is saturated, so water runs off into a *river*
3. Water is pulled by gravity; it filters into the *groundwater*
4. Water is pulled by gravity; it filters into the *cave*
5. Heat energy is added to the water, so the water evaporates and goes to the *clouds*
6. Water *stays* on the surface (perhaps in a puddle, or adhering to a soil particle)

Plant Station

1. Water leaves the plant through the process of transpiration going into the *clouds*
2. Water leaves the plant through the process of transpiration going into the *clouds*
3. Water leaves the plant through the process of transpiration going into the *clouds*
4. Water leaves the plant through the process of transpiration going into the *clouds*
5. Water is used by the plants and *stays* in the plant's cells
6. Water is used by the plants and *stays* in the plant's cells

River Station

1. Water flows into a *lake*
2. Water is pulled by gravity; it filters into the *soil*
3. Water flows into the *ocean*
4. An *animal* drinks the water
5. Heat energy is added to the water, so the water evaporates and goes to the *clouds*
6. Water *stays* in the current of the river

Clouds Station

1. Water condenses and falls on *soil*
2. Water condenses and falls as snow onto a *glacier*
3. Water condenses and falls into a *lake*
4. Water condenses and falls into the *ocean*
5. Water condenses and falls into the *ocean*
6. Water *stays* as a water droplet clinging to a dust particle

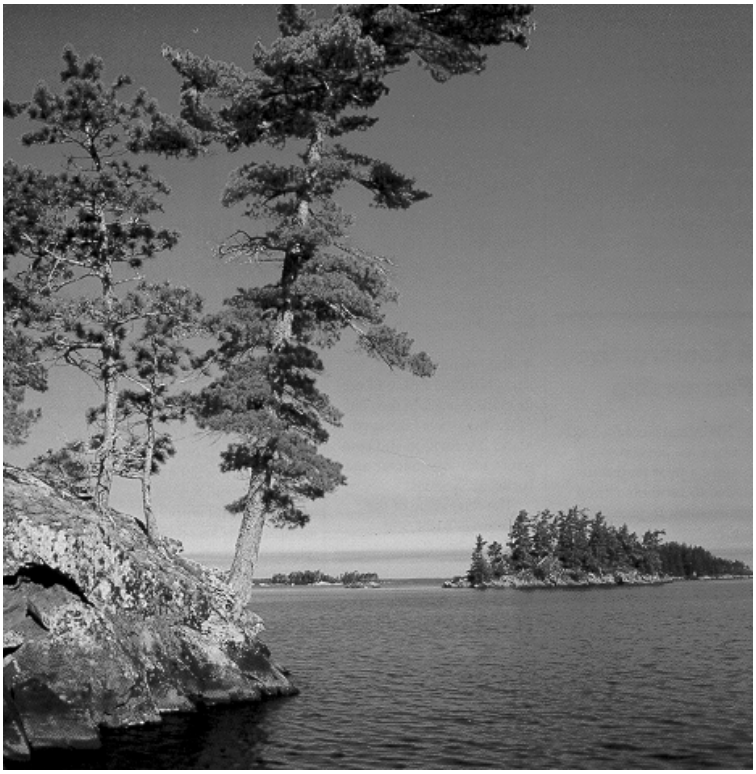
Ocean Station

1. Heat energy is added to the water, so the water evaporates and goes to the *clouds*
2. Heat energy is added to the water, so the water evaporates and goes to the *clouds*
3. Water *stays* in the ocean
4. Water *stays* in the ocean
5. Water *stays* in the ocean
6. Water *stays* in the ocean

Glacier Station

1. Ice melts and water filters into the *groundwater*
2. Ice evaporates and water goes to the *clouds*
3. Ice melts and water flows into a *river*
4. Ice *stays* frozen in the glacier
5. Ice *stays* frozen in the glacier
6. Ice *stays* frozen in the glacier

LAKES



ANIMALS

GROUNDWATER

RIVERS

CLOUDS

OCEANS

CAVES

SOIL

PLANTS

GLACIERS